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Subject: Kentucky Universal Service Fund Model and Inputs

A. General and Supporting Information

1. Kentucky
2. May 22, 1998
3.

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4. For hardware requirements, see HAI Model documentation.
5. For software requirements, see HAI Model documentation. The Kentucky Public Service Commission used HAI Model Release 5.0a and Office 97sr1.
6. HAI Model Release 5.0a.
7. For supporting information see the attachments.

B. Demonstration That the Cost Study Fulfills the Order's Criteria for State Cost Studies

See the attachments.

C. Demonstration that the Cost Study Fulfills Other Requirements of the Universal Service Order

See the attached order at 34.

360order.wpd 360 Appendices.ZIP

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN INQUIRY INTO UNIVERSAL SERVICE AND FUNDING ISSUES	))	ADMINISTRATIVE CASE NO. 360

INDEX

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O R D E R

INTRODUCTION

The Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (the "Act" or the "1996 Act"), specifically provides for states to adopt mechanisms that preserve and advance universal service.[1] Such mechanisms must be "specific, predictable, and sufficient" and must not "burden federal universal support mechanisms."[2] The decisions reached herein comply with those principles as well as those enumerated elsewhere in the 1996 Act. The first principle of the Universal Service Fund ("USF") created herein is to ensure that quality service is provided at just, reasonable, and affordable rates.[3] Ensuring that quality service is available to all Kentuckians at reasonable rates has been a primary goal of this Commission since its inception. That goal has been achieved in the past, in part, by means of a complex system of implicit subsidies. Prices for certain services such as toll, access, and vertical services were set above their economic costs, and prices for basic residential service, especially in rural areas, generally were set below their economic costs. However,

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1 47 U.S.C. § 254(f).

2 Id.

3 47 U.S.C. § 254(b).

complex costing methods and allocations have made it difficult in the past to determine the economic cost of the services. The purpose of this proceeding is to determine the amount of implicit high cost subsidy on a forward-looking basis and create an explicit mechanism to fulfill the necessary functions of those subsidies.

The Act, at Section 254(e), requires, among other things, that universal service support be explicit. The Federal Communications Commission's ("FCC") order on universal service explains why implicit subsidies should be replaced by an explicit mechanism:

> This system [of implicit subsidies] is not sustainable in its current form in a competitive environment. . . . In a competitive market, a carrier that attempts to charge rates significantly above cost to a class of customers will lose many of those customers to a competitor. This incentive to entry by competitors in the lowest cost, highest profit market segments means that today's pillars of implicit subsidies -- high access charges, high prices for business services, and the averaging of rates over broad geographic areas -- will be under attack. New competitors can target service to more profitable customers without having to build into their rates the types of cross-subsidies that have been required of existing carriers who serve all customers.[4]

The FCC has also found that "the states acting pursuant to sections 254(f) and 253 of the Communications Act, must in the first instance be responsible for identifying implicit universal service support. We believe that, as competition develops, states may be compelled by market place forces to convert implicit support to explicit, sustainable

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[4] In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Report and Order (May 8, 1997) ("FCC Order") at paragraph 17.

mechanisms consistent with section 254(f)."[5] This Commission concurs with the FCC's reasoning and with its approach, and determines, based upon findings to be discussed in this Order, that the state portion of the high cost subsidy is approximately $98 million annually. Because these subsidies have been necessary to preserve affordable rates in Kentucky, the Commission concludes that for the time being this amount, in addition to low-income support discussed herein, is required in the intrastate USF. This Order discusses these findings and related issues.

The evolution of the telecommunications industry has given rise to numerous Commission proceedings in recent years. In response to burgeoning competition and technological advances, the Commission has reduced regulatory requirements and exempted certain telephone services from regulation pursuant to enabling legislation, KRS 278.512.[6] In 1995, the Commission initiated a proceeding, the predecessor to this one, to investigate the viability of local competition, to expand universal service goals,

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5 FCC Order at paragraph 202.

6 See, generally, Administrative Case No. 273, An Inquiry Into Inter- and IntraLATA Intrastate Competition in Toll and Related Services Markets in Kentucky; Administrative Case No. 323, An Inquiry Into IntraLATA Toll Competition, and Appropriate Competition Scheme for Completion of IntraLATA Calls By Interexchange Carriers, and WATS Jurisdictionality; Administrative Case No. 340, An Investigation Into Diversified Operations of Local Exchange Telephone Companies; Administrative Case No. 344, Inquiry Into the Provision and Regulation of Cellular Mobile Telephone Service in Kentucky; Administrative Case No. 359, Exemptions for Interexchange Carriers, Long-Distance Resellers, Operator Service Providers and Customer-Owned, Coin-Operated Telephones; Administrative Case No. 370, Exemptions for Providers of Local Exchange Service Other Than Incumbent Local Exchange Carriers.

and to address the feasibility of reducing the non-traffic sensitive ("NTS") revenue requirement.[7] During the pendency of that docket, the Congress enacted the 1996 Act.[8]

In the September 26, 1996 Order in Administrative Case No. 355, the Commission established preliminary issues and initial parameters for universal service. The Commission found that an intrastate USF should be established to comply with minimum federal standards, and that it should support a single residential access line for Kentucky subscribers, promote facilities-based competition, support low-income assistance, and cover its administrative costs. The Commission determined that all telecommunications service providers regulated by the Commission would contribute toward universal service, except for payphone providers, and that the assessment upon each carrier would be based on the percentage of gross intrastate revenues net of payments to other carriers.

At that time, the Commission contemplated that universal service funding would be initiated on a flash-cut transition basis. Thus, NTS rate elements would be removed from access charges and intrastate toll rates once the fund was initiated.[9] However, based on the evidence received in this proceeding, the Commission's initial findings have been significantly altered.

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7 Administrative Case No. 355, An Inquiry Into Local Competition, Universal Service, and the Non-Traffic Sensitive Access Rate.

8 The 1996 Act became law February 8, 1996.

9 Administrative Case No. 355, Order dated September 26, 1996 at 27 and 28.

UNIVERSAL SERVICE COST MODEL SELECTION

The Commission first evaluated the Hatfield Model Version 2.2.2 in interconnection arbitration proceedings held pursuant to Section 252 of the Act.[10] Subsequently, the model has evolved into the current HAI Model, Release 5.0a ("HAI Model").[11] The Commission has also seen the Benchmark Cost Proxy Model evolve through four stages, culminating in the BCPM 3.1 ("BCPM"). Both models continue to evolve as the FCC and the states refine their critiques and suggestions and the model builders attempt to satisfy their clients' needs.

The Commission must choose a universal service cost model by May 26, 1998 to satisfy FCC requirements. As this deadline has approached, the FCC has continued to request further comments on principle inputs.[12] Accordingly, this Order will satisfy federal requirements imposed upon the states, as well as implement the Commission's desire to establish a USF in Kentucky.

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10 It should be noted that each of the arbitration proceedings before the Commission established unbundled network element ("UNE") pricing based on total element long run incremental costs ("TELRIC"), as submitted by the incumbent local exchange carriers ("ILECs").

11 The HAI Model, formerly known as the Hatfield Model, was developed by HAI Consulting, Inc. at the request of AT&T Communications of the South Central States, Inc. and MCI Communications Corporation.

12 Common Carrier Bureau Requests Further Comment on Selected Issues Regarding the Forward-Looking Economic Cost Mechanism for Universal Service Support, DA 98-848, CC Docket Nos. 96-45, 97-160 (May 4, 1998).

FCC Criteria Compliance

The FCC has provided general guidance for the construction of universal service cost models,[13] supplying ten criteria which must be satisfied.[14] Both HAI Model and BCPM Model supporters claim that their model satisfies these criteria. Indeed, the criteria are sufficiently general in nature that both models do appear to satisfy all requirements. Both models successfully construct and estimate the cost of a local network. However, there are some fundamental differences in their respective modeling approaches. In modeling wirecenters with lower population densities, the HAI Model approach focuses on designing a least-cost network built to serve large numbers of people over a wide geographic area and to provide access to comparable levels of service between urban and rural customers. The BCPM modeling approach focuses more on providing identical levels of service between urban and rural customers in a least-cost manner. Compared to the HAI Model, the BCPM tends to design smaller distribution and serving areas and places more of them within a wirecenter to serve a given number of people. Fewer but larger distribution and serving areas means that the HAI Model tends to install fewer remote terminals, serving area interfaces, and other types of plant than does the BCPM Model. Given these fundamentally different approaches to designing the local network, it is to be expected that the BCPM supporters would claim that the HAI Model underbuilds the network and will not work properly. By the same token, HAI Model supporters claim that the BCPM Model

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13 See, generally, FCC Order at paragraphs 223-272.

14 Id. at paragraph 250.

overdesigns and overbuilds the network far beyond what is reasonable and necessary to satisfy FCC requirements.[15]

The Integrated Cost Model ("ICM") being developed by GTE South Incorporated ("GTE") could potentially be used to estimate the cost of local service for universal service purposes. However, the ICM has not been introduced into this case. GTE has indicated its willingness temporarily to accept and support the BCPM model, but states it wishes to substitute the ICM at the appropriate time.[16]

GTE and Cincinnati Bell Telephone Company ("CBT") believe that each ILEC should have the freedom to choose its own universal service cost model and that all model inputs should be company specific.[17] Rather than taking a statewide view of what constitutes a least-cost, forward-looking technology network, GTE argues that the Commission must focus on each ILEC individually as the standard to judge what is a "least-cost" network utilizing a specific forward-looking technological design. GTE contends that a least-cost network utilizing specific, forward-looking technology will not necessarily be the same, for example, between adjacent GTE and BellSouth Telecommunications, Inc. ("BellSouth") wirecenters.

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[15] It is interesting to note that in the parties' efforts to discredit each other's positions, much discussion sometimes focused on user-definable default input values, the use of which neither party was actually advocating.

[16] GTE March 27, 1998 Brief at 16.

[17] Id. and CBT March 1998 Brief at 1 and 2.

It is commonly accepted that the universal service model designs a hypothetical least-cost local network utilizing forward-looking technology and encompassing certain actual local network characteristics. Such a hypothetical network would be designed and operated by an efficient firm operating in a competitive environment. The Georgetown Consulting Group ("GCG") on behalf of BellSouth argues that the Commission should take a statewide approach and utilize input data which most closely represents what a competitively efficient firm would experience.[18] The Commission agrees and finds that a statewide perspective should be taken in the design of the Kentucky universal service mechanism. There is no evidence in the record to suggest that a hypothetical, efficient firm would either change its network design or alter its resource procurement practices simply because it operates in wirecenters formerly monopolized by different ILECs. An input value obtained from GTE data could be used as the representative data input into the universal service cost model for use in a BellSouth wirecenter, or vice versa.

Accepting GTE's reasoning regarding the need for a company-specific model and inputs would impose unnecessary restrictions upon the hypothetical firm in the model. Moreover, acceptance of GTE's position could also serve to insulate the ILEC from the cost pressures that otherwise would be imposed on it by a competing firm. Accordingly, to the extent that GTE advocates placing a binding rule upon the Commission for choosing both a universal service model and model inputs, its argument is rejected.

The Commission notes that GTE has argued that "[t]he universal service fund must be sufficient to replace all of GTE's existing implicit subsidies, which are based on

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[18] Transcript of Evidence ("TE"), Vol. VI dated November 14, 1997 at 60 and 61.

GTE's actual costs."[19] It argues that it is entitled to a continuation of the opportunity to recover its prudently incurred investments plus a reasonable profit.[20] However, the FCC has concluded that embedded costs are not appropriate for determining universal service support, specifically rejecting the argument that "only a universal service mechanism that calculates support based on a carrier's embedded cost will provide sufficient support."[21] The Commission concurs, and rejects GTE's contention that, if it is not assured of recovering its embedded costs, its property will have been taken without due process of law. The United States District Court for the Eastern District of Virginia has rejected a similar argument made by GTE in its appeal of a local interconnection agreement. See GTE South Inc. v. Morrison, et al., C.A. No. 3:97CV493 (E.D.Va., May 19, 1998). That court found, citing Williamson Co. Regional Planning v. Hamilton Bank, 473 U.S. 172 (1985), that GTE's unconstitutional takings claim was not ripe because GTE had not sought just compensation through existing statutory mechanisms. Precisely the same circumstance exists here. GTE cannot claim that it has been deprived of just compensation when it has not applied for rate review pursuant to KRS 278.190. GTE may appear at any time before this Commission for a thorough review of its rates, so that an appropriate determination of its needs can be made.

The Commission must determine which model and input values best estimate the universal service costs. Inserting comparable input values into both the HAI Model and

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19 GTE March 27, 1998 Brief at 11.

20 Id. at 11-12.

21 The FCC states, "[t]he term 'embedded cost' refers to a carrier's historic loop or switching costs. FCC Order at paragraphs 227 and 228.

the BCPM Model yields universal service cost estimates within established zones of reasonableness when the same benchmarks are used. However, in the Commission's opinion, the HAI Model reflects more appropriate network costs. Moreover, the HAI Model more accurately locates customers and is more open to public review. Therefore, the Commission adopts the HAI Model to establish the Kentucky USF and determines that the HAI Model complies with the FCC's criteria as discussed below.[22]

CRITERION 1
The technology assumed in the cost study or model must be the least-cost, most-efficient, and reasonable technology for providing the supported services that is currently being deployed. A model, however, must include the ILECs' wire centers as the center of the loop network and the outside plant should terminate at the ILECs' current wire centers. The loop design incorporated into a forward-looking economic cost study or model should not impede the provision of advanced services. For example, load coils should not be used because they impede the provision of advanced services. Wire center line counts should equal actual incumbent LEC wire center line counts, and the study's or model's average loop length should reflect the incumbent carrier's actual average loop length.

The Commission determined that the nature of the design of the HAI Model aligns itself with current technology which is least-cost, most efficient and reasonable. The HAI Model engineers the complete network including the loop. It measures the cost of switching and interoffice facilities, and explicitly engineers the signaling network necessary to provide local exchange service. The HAI Model is designed to receive line count information, by type of service and by wirecenter, for the entire state. The HAI

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22 The Commission acknowledges that universal service models will continue to evolve while the FCC continues to investigate crucial aspects of model design and the model developers continue their work. Therefore, the Commission may, in the future, reconsider its decision of the model to be used.

Model uses the Local Exchange Routing Guide maintained by Bellcore to determine wirecenter location.

The HAI Model engineers longer loop length and in turn uses less Digital Loop Carrier ("DLC"). The current technology allows for advanced services to be provided over longer loop length. Although the HAI Model does not contain actual wirecenter line counts, the Commission intends to use current line count data.

The HAI Model produces a reasonable and accurate estimate of the average loop length for all loops in the study area. The customer location and loop methodology used to determine the loop lengths are explained in detail in the HAI Model documentation. The Commission has no reasonable way of determining the actual average loop length of all its loops in Kentucky for all classes of service. Thus, a comparison of actual average loop length to a cost proxy model loop length is not feasible. To determine the actual average loop length would require a review of each loop in this state, or at least a very comprehensive sample of loops for all classes of service. Moreover, the Commission believes that the loop lengths reflected in the HAI Model engineer an appropriate loop length for modeling purposes.

CRITERION 2
Any network function or element, such as loop, switching, transport, or signaling necessary to produce supported services must have an associated cost.

Each network function or element in the HAI Model has an associated cost.

CRITERION 3
Only long-run forward-looking economic cost may be included. The long-run period used must be a period long enough that all costs may be treated as variable and avoidable. The costs must not be the embedded cost of the facilities, functions, or elements. The study or model, however, must be based upon an examination of the

current cost of purchasing facilities and equipment, such as switches and digital loop carriers (rather than list prices).

The HAI model was developed to estimate the costs incurred by an efficient carrier building a network using current technology and costs. The consulting group designing the model used long-run forward-looking costs. The model correctly applies a long-run assumption by treating the ILECs' embedded cost structure, except for the location of wirecenters, as variable and avoidable. The Commission believes that the HAI Model meets the requirements of this criterion.

CRITERION 4
The rate of return must be either the authorized federal rate of return on interstate services, currently 11.25 percent, or the state's prescribed rate of return for intrastate services.

The parties participating in this proceeding have not been before the Commission for a rate of return proceeding in several years. Therefore, the current prescribed state rates of return are out of date and irrelevant to this proceeding. The Commission will use a prescribed rate of return of 10.3 percent. This rate of return reflects current and forward-looking conditions of the market.

CRITERION 5
Economic lives and future net salvage percentages used in calculating depreciation expense should be within the FCC-authorized range and use currently authorized depreciation lives.

The HAI Model allows the user to define the depreciation and future net salvage values. The Commission has chosen values within the FCC-authorized range as shown in the Appendices attached hereto.

CRITERION 6
The cost study or model must estimate the cost of providing service for all businesses and households within a geographic region. This includes the provision of multi-line

business services, special access, private lines, and multiple residential lines. Such inclusion of multi-line business services and multiple residential lines will permit the cost study or model to reflect the economies of scale associated with the provision of these services.

The HAI Model estimates the cost of providing service for all types of access lines within a geographic region. It then allows the user to specify which lines are to be supported by the USF.

CRITERION 7
A reasonable allocation of joint and common costs should be assigned to the cost of supported services.

The HAI Model assigns a reasonable allocation of joint and common costs to supported services.

CRITERION 8
The cost study or model and all underlying data, formulae, computations, and software associated with the model should be available to all interested parties for review and comment. All underlying data should be verifiable, engineering assumptions reasonable, and outputs plausible.

The HAI Model is open and based on publicly available information, even though some preprocessing occurs. The output spreadsheets are contained in the Appendices attached hereto.

CRITERION 9
The cost study or model should include the capability to examine and modify the critical assumptions and engineering principles. These assumptions and principles include, but are not limited to, the cost of capital, depreciation rates, fill factors, input costs, overhead adjustments, retail costs, structure sharing percentages, fiber-copper cross-over points, and terrain factors.

The HAI Model has the capability to examine and modify critical assumptions and engineering principles. The input values are contained in Appendices attached hereto.

CRITERION 10

The cost study or model should deaverage support calculations to the wire center serving area level at least, and, if feasible, to even smaller areas such as a Census Block Group, Census Block, or grid cell in order to target universal service support efficiently.

The HAI Model deaverages support calculations to the wirecenter serving area level and to smaller areas, thereby meeting this criterion.

Costing Universal Service on a Wirecenter Basis

The Commission has heard testimony from all parties to this case, and the majority of the parties believe the wirecenter level is appropriate for costing universal service. The Commission finds it is appropriate at this time to calculate universal service cost at the wirecenter level.

DEFINITION OF BASIC LOCAL EXCHANGE SERVICE

The Commission has, on a preliminary basis, defined basic local exchange service for universal service purposes to include dialtone, access to touchtone, access to locally provided emergency service (911 and E911), operator services, interexchange services, directory assistance, and a white-page directory and listing for residential customers.[23] No party has opposed the inclusion of a white-page directory and listing. Accordingly, the Commission affirms its decision to include this addition to the FCC's list of services to be supported.

The Commission has also found that the assessments for telecommunications relay service and telecommunication devices for the deaf should be tied to customers'

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[23] Administrative Case No. 355, Order dated September 26, 1996 at 29 and 30.

access lines.[24] Thus, when a CLEC serves a residential or business customer instead of the ILEC, the assessment will be collected by the CLEC and paid to the TRS and TDD fund.

The Commission has also previously found that touchtone service is a mandatory requirement for basic local exchange service; however, existing customers who do not subscribe to touchtone are "grandfathered," and touchtone service will continue to be optional for these customers while they remain at their current respective addresses.[25]

DESIGNATED SERVING AREAS

The FCC's discussion of service areas concludes "[t]hat service areas should be sufficiently small to ensure accurate targeting of high cost support and to encourage entry by competitors."[26] The FCC urges states not to designate existing ILEC study areas as service areas, as designating unreasonably large service areas might violate the 1966 Act.[27] However, the FCC does encourage state commissions, in order to promote competition, "[t]o consider designating service areas that require ILECs to serve areas that they have not traditionally served."[28] The FCC also states that it recognizes "[t]hat a service area cannot be tailored to the natural facilities-based service area of each entrant, but notes that ILECs, like other carriers, may use resold wholesale service

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24 Id. at 30.

25 Id. at 31.

26 FCC Order at paragraph 184.

27 Id. at paragraph 185.

28 Id.

or unbundled network elements to provide service in the portions of a service area where they have not constructed facilities."[29]

In regard to support areas, the FCC states that "it would be consistent with the Act for the Commission to base the actual level of universal service support that carriers receive on the cost of providing service within sub-units of a state-defined service area, such as a wire center or a census block group."[30] As discussed previously, actual universal service cost support in Kentucky will be based on costs disaggregated at the wirecenter level. An eligible telecommunications carrier ("ETC") that provides supported services using landline technology and that seeks USF support for providing one or more of the designated services within any given wirecenter must offer its services to all customers within each wirecenter for which it seeks USF support.

In regard to wireless providers, the FCC has cautioned that "[i]f a state adopts a service area that is simply structured to fit the contours of an incumbent's facilities, a new entrant, especially a CMRS-based provider, might find it difficult to conform its signal or service area to the precise contours of the incumbent's area."[31] CMRS-based providers' service areas do not, of course, always conform to wirecenter boundaries. It is sufficient if these carriers conform to this requirement only to the extent that their FCC authorized licenses and franchised territories allow. However, they must still meet all of the necessary criteria within their operating service territories to achieve ETC status.

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29 Id.

30 Id. at paragraph 192.

31 FCC Order at paragraph 185.

The Commission is also aware that the rural carriers are not required to participate at this time in universal service cost deliberations. The Commission notes, however, that all carriers must comply with 807 KAR 5:061, Section 8, and provide service without construction charges to any person requesting service within 750 feet of an existing customer of that carrier. The extension of a service area to encompass all access lines within a wirecenter applies to CLECs seeking universal service support.

Though the Commission currently chooses the wirecenter as the designated serving area, it may wish to consider other alternatives in the future. Accordingly, the Commission seeks comments on whether universal service would be better served if each county were a designated service area. There are counties in Kentucky whose residents are served by a different telecommunications carrier than that serving their county seat. These customers may incur toll charges to call the county seat or other parts of the county. This situation has generated numerous complaints and calls for action by county authorities and other elected officials. This situation has also generated problems concerning customers' ability to call the appropriate emergency authorities on a 911 or E911 basis. In this case, customers residing near the county boundary, who are served by a carrier other than that serving the county seat, may get the neighboring county's emergency authorities upon dialing 911 or E911. The emergency authorities in the neighboring counties often must forward messages to each other or have some other arrangement in place. However, when neighboring counties have difficulties cooperating with each other, delays in connecting Kentucky citizens with the proper emergency authorities can have devastating consequences.

One of the primary requirements of the 1996 Act for ETC status is access to 911 or E911 services. The comments should address whether access to 911 or E911 services should mean access to those emergency authorities and services that have been designated for the citizen seeking to use the service. In other words, the comments should address whether every citizen must have equal access to the emergency authorities and services within his own respective county.

Comments should also address general issues concerning whether the minimum service area for USF purposes should be designated as the county boundary,[32] including (1) whether county serving areas would encourage the companies to enter into interconnection agreements with each other and foster local competition across the state; (2) whether competition between ILECs for each other's customers would help alleviate the county-wide calling problems; and (3) whether facilities-based competition may help to solve the 911/E911 problem through facilitating switch upgrades and other necessary actions.

Though rural carriers are not now participating in the USF, the Commission invites the rural companies to work with CBT, BellSouth, and GTE in commenting on solutions to 911/E911 and county-wide calling problems that may continue for any counties within their respective operating territories.

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[32] This issue may also be a key factor in determining "affordability." The FCC in its Order at paragraph 114, discusses non-rate factors affecting "affordability" in considering [calling area], an examination that would focus solely on the number of subscribers to whom one has access for local service in a local calling area would be insufficient. [A] determination that the calling area reflects the pertinent "community of interest," allowing subscribers to call hospitals, schools, and other essential services without incurring a toll charge is appropriate."

INPUTS TO MODEL

The Commission has selected inputs for the HAI Model based on the criterion that the model should estimate the costs of a forward-looking, least-cost network. The cost model should not duplicate the existing network or the costs of the existing providers. The goal of the use of a cost model in this proceeding is to make existing subsidies in the network charges explicit to the end-users. Therefore, the inputs selected in this proceeding will be used for all service areas.

The Commission finds that some of the inputs that are used in the default version of the HAI Model are reasonable and accurate. Others variables will be changed to reflect the conditions in Kentucky and are discussed below.

The Commission has determined that the appropriate costs of debt and equity for use in the forward-looking cost model are 7 percent and 12.5 percent, respectively. The FCC's list of criteria allows the states to select cost of capital that is either equal to the FCC's current 11.25 percent or a cost of capital that is prescribed at the state level. Based on the Commission's analysis, the current and future conditions will not allow for 11.25 percent cost of capital. The FCC's prescribed cost of capital has remained unchanged for many years and was developed prior to the advent of local competitive pressures. Also, trends in interest rates are forecasted to remain flat over the next several years. The Commission has determined that a forward-looking capital structure of 40 percent debt and 60 percent equity is reasonable.

The Commission has used the input of 65 percent for Distribution Fill for all density zones. The Commission believes that default values in the HAI Model overstate

the amount of fill that would be observed in the current and future of telecommunications.

The Commission has selected 150 feet for the value for Drop Distance. The default values in the HAI Model are not representative of conditions in Kentucky. GCG found the average aerial and buried drops to be 325 and 250 feet, respectively. However, the Commission finds these lengths appear to be overstated. Therefore, the Commission selects 150 feet for all density zones.

The Aerial Drop and Buried Drop placement cost selected are $45.90 and $.59, respectively. This is an average cost selected by the GCG for all density zones. The Commission finds these costs to be reasonable.

The Buried Drop sharing fraction selected is 85 percent for all density zones. The default value for the HAI Model is 50 percent for all density zones. The default value, which represents two entities sharing a common trench, cannot reasonably be expected in current and future networks. On the other hand, the GCG's recommendation that no sharing be considered is unreasonable.

The Buried Cable Jacketing Multiplier represents the additional cost of buried distribution cable compared to the cost of underground and aerial distribution cable. The default value of the HAI Model is 1.04. The GCG selected 1.044 based on its analysis of buried and aerial distribution cost specific to Kentucky. The Commission will use 1.044 for the Buried Cable Jacketing Multiplier.

The Commission adopts the prices recommended by the GCG for the Network Interface Device ("NID"). The cost of the NID for residential and business case shall be

$7.57; the cost of the basic labor for the residential and business case NID shall be $32.30; and the cost of the protection block per pair for the residential and business case shall be $8.08. Terminal and splicing costs will be set at zero; they are included in the calculation of the costs named above.

The Commission adopts the recommendation by the GCG for Digital Loop Carrier. The GCG analysis used Kentucky-specific data. Although GCG recommended the use of two types in its forward-looking analysis, the Commission's output does not incorporate the Litespan system, since the integration of both in a single run is not possible in this release.

The values developed by the GCG for Distribution Cable Investment per foot pricing were developed using Kentucky-specific data and upon reviewing the data and its relationship to other similar inputs. The Commission finds GCG's recommendation on this issue to be reasonable and will use the values it recommends.

The maximum distance of the copper loop is set at 18,000 feet for default. At the hearing the parties disagreed as to whether the model contained the proper electronics to support such distances. There was also conflicting testimony as to whether the loop would perform properly at these distances. The Commission has chosen 15,000 feet as the maximum distance of the copper loop. It is the Commission's belief that today's technology allows the market place to install copper loop at distances beyond the traditional 12,000 feet presently prescribed by engineering standards. Although this determination represents a compromise, it is our expectation that forward-looking technology will permit the longer length.

The Commission adopted the serving area interface ("SAI") outdoor investment inputs recommended by the GCG. GCG argues that the default values in the HAI Model are not representative of conditions that exist in Kentucky and questions the genesis of the default values. The Commission agrees and will use the values suggested by the GCG.

The copper feeder fill and fiber feeder strand fill values are .727 and .945, respectively, for all density zones. These values are based on the GCG recommendations. They are based on currently used system values in Kentucky. The Commission agrees that these values are representative of forward-looking system design.

The Commission will use the values selected by the GCG for fiber feeder investment per foot and copper feeder investment per foot. These values are based on actual cost paid by BellSouth for fiber and copper in Kentucky. The default values lacked necessary supporting documentation, and the Commission will use the GCG values based on verifiable studies.

The GCG recommended values for all categories of copper manholes and fiber pullboxes is zero on the basis that distribution costs are not segregated. In the development of costs for copper and fiber investment, GCG included manhole and pullbox costs. Because the Commission chooses GCG's corresponding values, it is appropriate to also use its recommended values for cooper manholes and fiber pullboxes.